

REMARKS

This paper responds to the Office Action mailed February 13, 2006, which sets a three-month shortened statutory period for response. Inasmuch as this paper is filed on or before June 13, 2006, concurrently with a one-month extension of time, it is timely filed. Nevertheless, Applicants hereby authorize the charging of any additional required fees necessary for consideration of this paper to Deposit Account No. 19-0089.

In the Office Action, the Examiner considered claims 1-6. With the present Amendment, claims 3 and 6 are canceled without prejudice to, or disclaimer of, the subject matter recited therein. New claim 7 is added. Thus, with this Amendment, claims 1, 2, and 4, 5, and 7 are pending.

Applicants note that claim 1 has been amended to incorporate the elements of claim 3. Applicants further note that the claim 1 has been further amended to recite that the recording layer has a structure where an axial ratio c/a of a c axis length to an a axis length is between 2.634 and 2.676 inclusive. Support for this amendment is found throughout the specification and specifically, for example, in Figure 7.

Claim 7 is added to provide additional claim depth, reciting alternative embodiments of the invention. Support for this new claim is found throughout the specification, and specifically, for example, in the "Sixth, Seventh, Eighth and Ninth Embodiments," the particular description of which begins on page 19.

Information Disclosure Statements

The Office Action requests that Applicants explain why references in IDSs are pertinent. In response, Applicants respectfully note that the Examiner has made obviousness-type double patenting rejections, asserting that the claims in the present

application are not patentably distinct from the claims of other copending applications. Given that the Examiner deems those copending applications as including subject matter that is not patentably distinct from this application, Applicants have attempted to bring to this Examiner's attention all of the information provided in those other copending applications.

Claim Rejections – 35 U.S.C. §§ 102 and 103

Matsunaga et al., Phys. Rev. B, Vol. 64: 184116-184122 (2001)

The Office Action rejects claims 3 and 6 under 35 U.S.C. § 102(b) as allegedly anticipated by Matsunaga et al., Phys. Rev. B, Vol. 64: 184116-184122 (2001). In response, Applicants note that the Office did not reject claim 1 as anticipated by Matsunaga et al. With this amendment, the subject matter of claim 3 is incorporated into claim 1, and claim 6 has been canceled. The present claims are not anticipated by Matsunaga et al.

Horie et al., Proc. SPIE, Vol. 4342: 76-87 (2002)

The Office Action rejects claims 3 and 6 under 35 U.S.C. § 102(b) as allegedly anticipated by Horie et al., Proc. SPIE, Vol. 4342: 76-87 (2002). In response, Applicants note that the Office did not reject claim 1 as anticipated by Horie et al. With this amendment, the subject matter of claim 3 is incorporated into claim 1, and claim 6 has been canceled. The present claims are not anticipated by Horie et al.

Shinkai et al., JP 2003-112477

The Office Action rejects claims 3 and 6 under 35 U.S.C. § 102(a) as allegedly anticipated by Shinkai et al., JP 2003-112477. In response, Applicants note that the Office did not reject claim 1 as anticipated by Shinkai et al. With this amendment, the

subject matter of claim 3 is incorporated into claim 1, and claim 6 has been canceled. The present claims are not anticipated by Shinkai et al.

Horie et al. (U.S. Patent Application No. 2002/0160305)

The Office Action rejects claims 3 and 6 under 35 U.S.C. § 102(e) as allegedly anticipated by Horie et al. (U.S. Patent Application No. 2002/0160305). In response, Applicants note that the Office did not reject claim 1 as anticipated by Horie et al. With this amendment, the subject matter of claim 3 is incorporated into claim 1, and claim 6 has been canceled. The present claims are not anticipated by Horie et al.

Harigaya et al. (U.S. Patent Application No. 2004/0037203)

The Office Action rejects claims 3 and 6 under 35 U.S.C. § 102(e) as allegedly anticipated by Harigaya et al. (U.S. Patent Application No. 2004/0037203). In response, Applicants note that the Office did not reject claim 1 as anticipated by Harigaya et al. With this amendment, the subject matter of claim 3 is incorporated into claim 1, and claim 6 has been canceled. The present claims are not anticipated by Harigaya et al.

Shimanuki et al. (JP 64-025328)

The Office Action rejects claims 1-6 under 35 U.S.C. § 102(b) as allegedly anticipated by, or in the alternative under 35 U.S.C. § 103(a) as allegedly obvious over, Shimanuki et al. (JP 64-025328). In response, Applicants respectfully note that the recording medium of Shimanuki et al. is of the magneto-optical type, whereas the present claims are directed to a phase-change type of recording medium. Indeed, the English language abstract of Shimanuki et al. makes clear that what is disclosed is of the magneto-optical type ("It is used for photothermal magnetic recording type information recording medium.") The Office Action admits that "it is not clear if the

exemplified composition [of Shimanuki et al.] has the recited crystal structure,” yet concludes that it is the Examiner’s position that it does. Such conclusion is unwarranted in view of the English language abstract of the document.

Applicants submit herewith translated portions of the Shimanuki et al. document, which should be sufficient to establish that the disclosure relates to magneto-optical recording media, not phase-change recording media.

Thus, Applicants respectfully submit that Shimanuki et al. does not disclose the presently claimed invention.

Shingai et al. (U.S. Application Publication No. 2003-0224292)

The Office Action rejects claims 1-6 under 35 U.S.C. § 102(b) as allegedly anticipated by Shingai et al. (U.S. Application Publication No. 2003-0224292), which published December 4, 2003, and was filed May 28, 2003. Initially, Applicants note that the Examiner is incorrect to apply this publication in a rejection under 35 U.S.C. § 102(b), as it published after the filing date of the present application (September 9, 2003). Thus, the document is only citable as art under 35 U.S.C. § 102(e). Regardless, the present claims are directed to a recording medium comprising, among other elements, Sb, Mn, and Te, whereas Shingai et al. discloses Sb, Mn, and Ge (Sample No. 10 is $\text{Mn}_{16}\text{Sb}_{64}\text{Ge}_{20}$) – not Te. For at least this reason, Shingai et al. does not anticipate the claimed invention. Moreover, Applicants respectfully note that the Shingai et al. fails to recite any construction in which the recording layer is specified in a range in which diffracted rays exist. For at least this reason as well, Shingai et al. does not anticipate the presently claimed invention.

Shingai et al. (U.S. Application Publication No. 2003-0232278)

The Office Action rejects claims 1-6 under 35 U.S.C. § 102(e) as allegedly anticipated by Shingai et al. (U.S. Application Publication No. 2003-0232278), which published December 18, 2003, and was filed June 13, 2003.

Applicants respectfully note that Shingai et al. does not disclose an optical recording medium that includes a phase change recording layer where reversible phase changes between a crystal phase and an amorphous phase are used, wherein the recording layer includes at least Sb, Mn, and Te and, in a state corresponding to the crystal phase, has a structure where one diffracted ray is detected by X-ray diffraction as being present in each of three spacings (Å) of 3.10 ± 0.03 , 2.25 ± 0.03 , and 2.15 ± 0.03 , in a range of between 3.13 and 2.12 spacing inclusive, with diffracted rays not being detected in other ranges within the 3.13 to 2.12 spacing range, wherein when indexing has been performed for a hexagonal lattice in a state corresponding to the crystal phase, the recording layer has a structure where an axial ratio c/a of a c axis length to an a axis length is between 2.634 and 2.676 inclusive.

Applicants respectfully request withdrawal of the rejection over Shingai et al.

Matsunaga et al. (Phys. Rev. B Vol. 64, pp184116-184122 (2001)) in view of Tominaga et al. (U.S. Patent No. 5,627,012)

The Office Action rejects claims 1-6 under 35 U.S.C. § 103 as allegedly obvious over Matsunaga et al. (Phys. Rev. B Vol. 64, pp184116-184122 (2001)) in view of Tominaga et al. (U.S. Patent No. 5,627,012).

Applicants respectfully submit that a *prima facie* case of obviousness is not established by these documents for at least the following reasons. A *prima facie* case

of obviousness requires a) the motivation to combine the separate reference teachings, b) the presence of all claimed elements, and c) a reasonable expectation of success. The Office Action fails to establish any of these requirements.

First, there is no specific motivation to arrive at the claimed invention. The Office Action suggests that it would have been obvious to modify the teachings of Matsunaga et al. by adding at least a small amount of Mn to improve the reliability, as taught by Tominaga et al. However, Applicants respectfully submit that Tominaga et al. does not teach that Mn improves reliability. Rather, Tominaga et al. states that “V, Ti or the like (which corresponds to M in the present invention) is added for improving reliability and other properties.” (Column 3, lines 43-45.) “M” includes Ti, Zr, Hf, V, Nb, Ta, W, and Mo, in addition to Mn. Moreover, “M” is not even required by Tominaga et al. – it can be entirely absent. Thus, Applicants respectfully submit that in reading Tominaga et al., one of ordinary skill in the art would not be motivated to choose Mn.

Second, even if Mn were chosen, other aspects of the present invention would not necessarily be present. For example, Applicants respectfully note that the claims require a recording layer includes at least Sb, Mn, and Te and, in a state corresponding to the crystal phase, has a structure where one diffracted ray is detected by X-ray diffraction as being present in each of three spacings (Å) of 3.10 ± 0.03 , 2.25 ± 0.03 , and 2.15 ± 0.03 , in a range of between 3.13 and 2.12 spacing inclusive, with diffracted rays not being detected in other ranges within the 3.13 to 2.12 spacing range wherein when indexing has been performed for a hexagonal lattice in a state corresponding to the crystal phase, the recording layer has a structure where an axial ratio c/a of a c axis length to an a axis length is between 2.634 and 2.676 inclusive. Applicants respectfully

submit that the Office bears the burden of showing the presence of all of these claimed elements, which it has not done.

Finally, despite the Office Action's assertions, there would have been no expectation of success of achieving the specific elements of the present claims. There is no reason to believe that Applicants' particularly claimed crystal structure would have resulted.

In view of at least these points, Applicants respectfully submit that the claims are not obvious over Matsunaga et al. in view of Tominaga et al.

Suzuki et al. (JP-2003-237230), Harigaya et al. (EP 12609783), and Harigaya et al. (U.S. Patent No. 6,770,346)

The Office Action rejects claims 1-6 under 35 U.S.C. § 102(a), 102(a), and 102(e), as allegedly anticipated by Suzuki et al. (JP-2003-237230) Harigaya et al. (EP 12609783), and Harigaya et al. (U.S. Patent No. 6,770,346), respectively. As each of these documents is cited by the Office Action for the same disclosure, Applicants will treat the documents together.

The Office relies upon each of these documents for disclosure of media having MnGeSbTe components. The Office Action fails to show any of the crystal characteristics recited in the present claims, and in fact, fails even to mention any other elements of Applicants' claims. The Office Action appears to imply that such other elements of Applicants' claimed invention would be *inherent*.

However, Applicants respectfully submit that the initial burden in showing that a claimed element is inherently present lies with the Patent Office. To establish inherency, the Patent Office has the initial burden of showing that the element is

necessarily present. It is not enough that the element *might* or *could* be present – it *must* be present. Without additional proof that Applicants' other claimed elements are present, the Patent Office has failed to carry this burden.

Applicants respectfully point out that simply because a composition includes the same elements does not necessarily mean that the composition will function in the same way. The Examiner's attention is respectfully directed to Applicants' first and second embodiments and first and second comparative examples, which are discussed beginning at page 12, line 6. As the results in Figures 3 and 4 show, changes in the relative percentages of the components of the composition can have significant effects on performance of the end product.

Applicants respectfully submit that it is not reasonable to conclude that simply because a document discloses a media comprising MnGeSbTe that such media is necessarily the same as Applicants' claimed invention.

Claim Rejections – Obviousness Type Double Patenting

The Office Action rejects claims 3 and 6 for obviousness type double patenting over U.S. Patent Applications 11/181,886, 11/013,470, and 10/893,355.

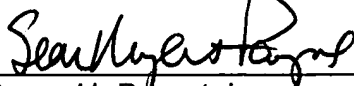
In response, Applicants note that the Office did not reject claim 1 for obviousness-type double patenting. With this amendment, the subject matter of claim 3 is incorporated into claim 1, and claim 6 has been canceled. Applicants respectfully submit that the present claims are not obvious in view of those of U.S. Patent Applications 11/181,886, 11/013,470, and 10/893,355.

Conclusion

In view of the foregoing remarks and amendments, Applicants respectfully submit that the claims are allowable and in condition for allowance. If any additional fees are required for consideration of this response, the Office is authorized to charge those fees to Deposit Account No. 19-0089.

Any comments or questions concerning this application can be directed to the undersigned at the telephone number given below.

Respectfully submitted,
Hiroshi SHINGAI et al.



Bruce H. Bernstein
Reg. No. 29,027 Reg No 42,920

June 12, 2006
GREENBLUM & BERNSTEIN, P.L.C.
1950 Roland Clarke Place
Reston, VA 20191
(703) 716-1191